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DEVELOPMENT AND INTERNATIONAL COOPERATION: DROUGHT AND DESERTIFICATION

# Situation of countries stricken by desertification and drought in Africa

## Report of the Secretary-General

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# I. INTRODUCTION

1. The present report is submitted in accordance with Economic and Social Council resolution 1989/103 of 29 July 1989, as endorsed by the General Assembly in its decision 44/437 of 19 December 1989. In paragraph 9 of the resolution, the Council requested the Secretary-General to report to the General Assembly at its forty-sixth session, through the Economic and Social Council, on the situation in countries stricken by desertification and drought and to prepare, as necessary, specific and coordinated proposals for action.

2. The effect of drought and desertification on the countries affected was first introduced as a separate item of the agenda of the General Assembly at its thirty-ninth session and given further consideration at the fortieth, forty-first and forty-fourth sessions and by the Economic and Social Council at its second regular sessions in 1985, 1986 and 1989 (see A/40/392-E/1985/117, A/41/346-E/1986/96 and A/44/296-E/1989/81).

3. The present report should be read in conjunction with the report of the Secretary-General on the various provisions of General Assembly resolution 44/172 of 19 December 1989 (A/46/157-E/1991/55).

4. In compiling the present report, much material, both on the present situation and on recent initiatives concerned with drought and desertification, was obtained from relevant agencies and organizations (Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children's Fund (UNICEF), United Nations Development Fund for Women (UNIFEM), World Meteorological Organization (WMO), Permanent Inter-State Committee on Drought Control in the Sahel (CILSS), Intergovernmental Authority for Drought and Development (IGADD), Organization of African Unity (OAU), Economic Commission for Africa (ECA), International Union for the Conservation of Nature and Natural Resources (IUCN), International Institute of Tropical Agriculture (IITA), International Livestock Centre for Africa (ILCA) and United States Agency for International Development (USAID)). Constraints of reporting length preclude the possibility of including the detailed contributions supplied, although it would clearly be of interest to do so. The relevant section of the report is, therefore, a summary and synopsis of the major trends discernible in recent activities related to the subject in hand.

5. The present report first reviews the drought and desertification situation in the affected countries of Africa and considers the resultant effects, before proceeding to examine ongoing activities and planned initiatives by Governments and regional and international organizations in the field of drought and desertification. The final section contains specific and coordinated proposals for action for consideration by Member States, especially the affected African countries, donor countries and international

organizations working for the rehabilitation and sustainable development of the drylands of the continent.

## II. DROUGHT AND DESERTIFICATION IN AFRICA

6. The 1977 United Nations Conference on Desertification, in the Plan of Action to Combat Desertification defined desertification as "the diminution or destruction of the biological potential of the land that may eventually lead to desert-like conditions" 1/ or as "an impoverishment of arid and semi-arid ecosystems under the impact of human activity", in both cases connecting it with the inappropriate use of natural resources by man.

7. More recent definitions, such as that by the World Bank, state that it is a process of sustained land degradation in arid, semi-arid and dry sub-humid areas, caused at least partly by man. The deterioration of both vegetation and soils causes a loss of "resilience". Beyond a certain point, the land has so lost its resilience that the cost of rehabilitation is exorbitantly high and in practical terms the degradation is irreversible.

8. Estimates suggest that by the year 2000, if the present trend of total land degradation continues, the annual world loss will be 10 million hectares (or 0.7 per cent) of the area presently cultivated. Desertification is a significant element in that degradation.

9. Drought is a natural phenomenon caused mainly by climatic and meteorological factors. Three kinds of drought have been defined: meteorological drought, or extended periods of below-average annual precipitation as calculated usually against a 30-year norm adopted by WMO; hydrological drought shown in falling water-tables, reduced river flows, disappearing springs and depleted groundwater aquifers, and agricultural drought, which results in reduced agricultural production, severe plant stress and crop failures.

10. The African drylands, consisting mainly of the Sudano-Sahelian region, north Africa and the countries covering or adjacent to the Kalahari and Namib deserts, are characterized by recurrent droughts. An especially severe drought affected the western Sahel from 1968 to 1973, later spreading to the eastern Sudano-Sahelian region and parts of southern Africa. In 1983-1984, drought affected at least half the African continent and 22 countries faced food shortages. Rainfall totals were higher in 1986, 1987 and 1988, but a widespread return to dry conditions during 1990 cast doubt on whether the prolonged dry period had really ended.

### A. The drought situation: 1988-1990

11. Many of the driest areas in Africa in 1986, 1987 and 1988 received far better rainfall totals than during the very dry period of the mid-1980s. Closer analysis of the monthly figures, however, shows that although in sub-Saharan Africa 1988 was one of the wettest years since 1968, the overall

totals were lower than those of the pre-deficit years and that seasonal and geographical variations resulted in local pockets of continuing drought. The positive aspects were the high mid-season totals and more regular distribution throughout the season; both critical factors for a successful agricultural season.

12. The 1989 rainy season was good overall in the Sudano-Sahel, with areas such as western Ethiopia and eastern Sudan having above average seasonal totals. Northern Ethiopia, western Sudan, south-east Niger and Mauritania, and parts of Mali and Burkina Faso, however, received significantly below normal rainfall. 1988-1989 was the first time since the mid-1960s that the Sahel overall received two consecutive years of near or above normal rainfall, based on the P. Lamb index used by WMO.

13. During 1990, for the Sahel as a whole, cumulative rainfall was about 70 per cent of the 30-year norm. The season began slowly and erratically, with the result that in many areas plantings failed.

14. The driest areas in the western Sahel were located in north Senegal and southern Mauritania, with much of the rest receiving between 75 and 100 per cent of the normal May-August rainfall. The long uninterrupted run of rainfall deficient years has been especially marked in the west of the Sudano-Sahelian zone, especially Senegal, Mauritania, Niger and Mali and in the west of southern Africa.

15. The most extensive areas that have experienced significantly below average growing conditions in both 1989 and 1990 are concentrated particularly in the east and include parts of the Sudan, eastern Ethiopia, northern Kenya and northern Uganda.

16. In the Sudan, August rainfall totals were among the lowest on record for many stations and temperatures were abnormally high. Kassala recorded only 25 per cent of the 30-year mean rainfall for May to October and El Obeid 43 per cent. The rains ended at the usual time and many late-planted crops were unable to complete their growth cycles. Parts of western and central Ethiopia and southern Sudan, however, received near or slightly above normal rainfall.

17. In southern Africa there was good rainfall in 1989, after a slow start, but it was drier than normal in the arid regions of Namibia, north-west South Africa and Botswana. The 1990 rainy season also began late, with low initial totals of 50 per cent and even 75 per cent lower than normal, but then recovered with the result that above average rainfall overall was reported from eastern Namibia, western Botswana and parts of Zimbabwe. The rest of the region received 75 to 100 per cent of normal rainfall. Rainfall throughout north Africa was satisfactory.

18. The increased precipitation after 1986 was reflected in a partial recovery of the larger lakes, rivers and well levels from previous record low levels. Whether the recent recurrence of drought will result in hydrological drought will depend on its duration.

## B. The desertification situation: 1989-1990

19. Satellite imagery in 1990 indicated that the northern limits of green biomass in the Sahel had shifted northwards by 50 to 150 kilometres since 1985. It has been suggested, however, that the vegetative cover in 1989 was degraded in comparison with the situation in wetter years of the 1950s.

20. Satellite data also record a continued reduction in forest biomass throughout the drylands of Africa. Although the area of forest and woodland increased overall in Africa between 1983 and 1988, the only countries in dryland Africa to register an increase were Algeria and the Libyan Arab Jamahiriya, while the greatest declines were registered in the Sudano-Sahelian countries. These are clear manifestations of continued ecological degradation.

21. At present, ecological degradation seems unlikely to be arrested, since some of the factors that determine it are becoming more pronounced, especially in the Sudano-Sahelian zone (see table).

22. In areas with low carrying capacities, continued human population growth in Africa (which at 3.1 per cent is the highest for any continent in the world) increases stress on the land. Severe land degradation may result, unless there are alternative or supplementary means of supporting the population.

Table. Trends in factors influencing desertification, 1977-1988

(Annual percentage rates of change)

| | Africa | | South of Sudano-Sahel | | Sudano-Sahel | | North Africa | |
|---|---|---|---|---|---|---|---|---|
| | 1977-1985 | 1985-1988 | 1977-1985 | 1985-1988 | 1977-1985 | 1985-1988 | 1977-1985 | 1985-1988 |
| Population | 3.0 | 3.0 | 3.1 | 3.1 | 2.9 | 3.0 | 2.8 | 2.8 |
| Livestock | 1.3 | 1.7 | 1.6 | 2.0 | 0.7 | 0.6 | 0.8 | 2.2 |
| Fuelwood | 2.9 | 3.0 a/ | 3.2 | 3.3 | 2.5 | 2.3 | 2.4 | 2.3 |
| Charcoal | 3.1 | 2.9 a/ | 3.3 | 3.4 | .. | 1.5 | 2.4 | 1.2 |

Source: World Population Prospects 1988 (United Nations publication, Sales No. E.88.XIII.7); FAO, FAO Production Yearbook 1987 and 1988; and FAO, FAO Forest Products Yearbook 1987.

a/ 1985-1987.

23. Government policies may contribute to the problem. Where large areas of dry pasture have been allocated to other uses, the area of free rangeland has been reduced and the property rights of the pastoralists weakened, thereby discouraging environmentally sound practices. Similarly, government water points and the encouragement of sedentarization may increase the stress on the land through overgrazing and excessive trampling.

24. In 1989, the United Nations Sudano-Sahelian Office, in evaluating progress in implementing the drought and desertification chapter of the United Nations Plan of Action for African Recovery and Development 1986-1990 (resolution S-13/2, annex), circulated questionnaires to 50 African countries and 40 international organizations. Fifty per cent of African government respondents saw a significantly worse situation in drought and desertification, as reflected in falling groundwater levels, the drying up of surface water, rangeland degradation, rainfed and irrigated cropland deterioration and deforestation, while 17 per cent rated it as slightly worse.

## C. Effects of recurrent drought and desertification

25. The effects of drought and desertification are widely felt in the affected countries, eroding the productive capacity of local and national economies and threatening the very survival of the people (see also annexes I-IV).

### 1. Effects on water resources

26. Deeper groundwater resources do not seem badly affected by the current dry period; indeed, on the basis of evidence from the Niger, Chad, Mali and Mauritania, these reserves may have been considerably more resilient during the 1980s than had previously been thought.

27. The flooding and increased river flows during 1988 and 1989, for example in the Nile basin and the Zambesi, resulted, at least partly, from faster runoff from degraded and eroded soils.

28. Surface water levels fell somewhat during 1989 and 1990, causing fears for recession agriculture in areas already badly affected by rainfall deficiencies, such as the Niger and Senegal river valleys in Mauritania. In Senegal, the areas planted to recession agriculture declined sharply because of lower maximum river levels.

29. Very low water levels in the Nile system caused water shortages for irrigation and human consumption in the Sudan, raising doubts about the continued expansion of irrigated perimeters.

## 2. Effects on vegetation

30. Drought is a recurring phenomenon in the drylands of Africa, which implies that vegetation variability is the normal pattern. The existing vegetation was established during a more humid period and may no longer be viable. After 20 years of drier conditions or drought, it may be normal that the vegetative cover should change.

31. Pressure on the land caused by demographic growth and livestock herds results in continued environmental degradation, for example, growing concentric circles of degradation due to stock trampling around villages and stock watering points. Such effects appear to be less severe in good rainfall years and are aggravated during periods of drought.

## 3. Effects on agriculture

32. In 1989, ECA reported a sustained improvement in the food sector in Africa overall, because agricultural output had grown faster than population, as a result of favourable rainfall. Nevertheless, in Botswana and Senegal, total food production declined in 1989 in comparison with 1975. Overall production declined in 1989 from 1988 levels and it fell again in 1990.

33. The effects of drought during the last year are seen in the crop failures and poor harvests experienced in many countries of Africa. The average harvest in the countries covered by CILSS (Burkina Faso, Cape Verde, Chad, Gambia, Guinea-Bissau, Mali, Mauritania, Niger and Senegal) was 6 per cent lower than in 1989, ranging from losses of about 5 per cent in the Gambia and Mali, 10 per cent in Senegal, to 20 per cent in Mauritania and the Niger. In eastern Africa, parts of the Sudan experienced a 43 per cent decline in output and Northern Kordofan and Northern Darfur failed almost totally to produce a crop.

34. Following the very late start to the rainy season, which delayed planting, declines in production are forecast for Zimbabwe, Zambia, Lesotho, Madagascar and South Africa, with the result that there will be no exportable surpluses in the subregion during 1991.

## 4. Effects on livestock production

35. The situation is less clear in the livestock sector. In 1988 and 1989, the number of cattle remained fairly stable in most countries in Africa. There were, however, large increases in the number of goats, reflecting an increasing preference amongst livestock keepers for more drought-tolerant animals that have a lower market value.

36. The recurrence of drought has caused renewed hardship to pastoralists. Livestock sales have glutted the market, causing prices to fall, for example, in the Sudan and the Niger. Drought-induced shortages of fodder and a lack of

food has caused large numbers of pastoralists and seasonal labour to move earlier than normal in search of better conditions, causing stress to the recipient areas, for example, the movement from the Niger to Benin and Cameroon reported by the FAO Global Information and Early Warning System on Food and Agriculture (GIEWS) in March 1991.

## 5. Effects on the food situation

37. The widespread harvest shortfalls during 1990 will result in food deficiencies before the next harvest. In December 1990 and March 1991, FAO/GIEWS reported that the food supply outlook for sub-Saharan Africa was deteriorating and the food aid requirements of the 46 developing countries in the region would increase sharply in 1991 (to 5.1 million tons, against receipts of 2.9 million tons in 1989/90).

38. Of most concern is the rapidly deteriorating situation in the Sudan, which needs 1 million tons of food assistance, following the failure of two successive harvests.

39. Northern Ethiopia is also badly affected; there was almost total crop failure in most of Eritrea and parts of Tigre, although elsewhere the harvest was mostly good.

40. Emergency food aid is needed by several Sahelian countries in west Africa, particularly Chad, Mauritania and the Niger. According to FAO, the relief food needs in the Niger in 1990/91 are expected to be about double those of 1989/90. Other countries, particularly Burkina Faso, Mali and Senegal, need assistance for the internal movement of cereals from surplus areas in the south of the countries to deficit northern cropping areas.

41. Civil strife is a complicating factor influencing the availability of food in all too many areas of the continent. The problems in Ethiopia, the Sudan, Angola and Mozambique are well documented.

## 6. Effects on changing land use

42. Prolonged drought over many years has caused some changes in land use. The favouring of goats over cattle has already been mentioned, particularly in the more arid countries. The trend was also marked even between 1988 and 1989 in Algeria and Angola.

43. The acreage under drought-resistant cereals such as millet and sorghum increased between 1979-81 and 1989. The fall in levels from 1988 to 1989, however, suggests a preference for other crops when there is more rainfall.

44. Many countries have given greater emphasis to irrigation, for example, the Sudan, with irrigated wheat and sorghum. In the worst drought scenarios, however, water resource shortages could well prove an important constraint.

## 7. Effects on nutritional levels

45. Harvest shortfalls are quickly reflected in the data on food intake, showing the lack of reserves among the people to cope with such emergencies. Present nutritional levels are still far from satisfactory, particularly in areas experiencing a recurrence of rainfall deficits.

46. In 1989, the amount of meat available for consumption increased, except in countries that registered continuing pockets of drought, such as Chad and the Sudan; the available amounts of protein per capita per day showed insignificant increases, except in the Sudan, where there was a pronounced decline, from a total of 2,264 grams in 1979 to 1981, to 1,981 grams between 1986 and 1988; and available calories per capita per day fell slightly between 1986 and 1988 compared with levels for 1979 to 1981.

## 8. Effects on the rural economy

47. Harvest shortfalls caused by drought are accompanied by a seemingly inevitable increase in the price of foodstuffs on the local markets. This was widely reported during the first few months of 1991, for example in the Sudan and Burkina Faso.

48. In the Sudan, the negligible production of millet and sorghum north of the 13th parallel in 1990 was reflected in extremely high grain prices, reaching unprecedented levels in Darfur and Kordofan.

49. Such price levels have two important consequences: firstly, high prices severely reduce the access to food for large numbers of low-income people and, secondly, they act as incentives to the farmer to plant additional areas of crops. In the Sudan large additional acreage of cereals were planted at the start of the 1990 season.

50. In contrast, prices within the livestock sector tend to fall in times of drought as the herders sell animals because of the shortages of fodder and water, and in an attempt to realize at least some return on their herds and to obtain cash to buy food. These factors cause a severe deterioration in the livestock/cereal exchange ratio for the pastoralists, further eroding their ability to feed themselves. Such a situation has recently been reported in the Sudan and the Niger.

51. Increased expenditure on food severely erodes rural capacities to purchase consumer goods, causing repercussions throughout the rural economies and limiting development potential.

## 9. Effects on population movements

52. Population movements have long been a characteristic of the dryland areas, involving migrant pastoralists, seasonal workers and people fleeing

adverse conditions. The two important factors underlying the latter two migration movements are a decline in the potential and conditions in the rural areas and gross inequalities between rural and urban wages. Drought lowers rural incomes from cash crops and at the extreme reduces domestic food levels to the point where people flee in search of food and water, as reported at the present time from the Darfur and Kordofan regions in the Sudan.

53. The long-term response is that people move to areas where they perceive they have better opportunities. The result has been a movement, especially of men, to the towns. In the areas north of the 200-300 mm isohyet in the Sahel, the absence of men in the villages has become an increasingly noticeable feature throughout the 1980s.

54. Consequently, the urban areas have shown significant growth. Since many of the newcomers have few resources, urban growth has translated particularly into an expansion of the urban, shanty-town fringes, in which facilities are often minimal.

### 10. Effects on the economy

55. The majority of countries in Africa are stricken with varying degrees of desertification, which has a considerable bearing on their overall economic position and prospects. Agricultural production per capita, the indicator that reflects the ability of the domestic agricultural sector to satisfy domestic consumer demand, has declined from the levels of 1975.

56. Similarly, the average annual growth of GNP per capita, which in sub-Saharan Africa grew at 3.0 per cent between 1965 and 1973, fell by 2.8 per cent between 1980 and 1986, by 4.4 per cent in 1987 and by 0.5 per cent in 1989.

57. Economic growth in Africa was lower in 1990 than in 1989, especially in the Sahelian countries. In eastern and southern Africa the overall growth rate may have been no more than 2.5 per cent, some 1.3 per cent lower than in 1989. A major factor was the effect of the Gulf crisis on the energy sector. The north African situation would appear to be favourable because of above-average agricultural production and local reserves of oil.

## III. INITIATIVES RELATING TO DROUGHT AND DESERTIFICATION

58. Environmental problems were not high on national development agendas during the 1960s, partly because good rainfall totals masked many of the alarm signals that had begun to be apparent during the 1950s. Some soil conservation programmes were initiated, however, in areas severely affected by desertification, for example, the Yatenga region of Burkina Faso.

59. The prolonged drought between 1968 and 1972 drew international attention to the problems of the Sahel. Media coverage of the drought and animal and human losses attracted public attention and thus stimulated the strengthening of the international aid process.

60. To facilitate coordination of this aid the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) was established in 1973. At the international level, the United Nations Sudano-Sahelian Office was established in 1973 to assist the drought-stricken countries in their programmes of drought-preparedness, recovery, rehabilitation and medium- to long-term development. With the support of the Club du Sahel, CILSS adopted a common development strategy for the Sahel in 1977, concentrating on agriculture, livestock rearing and irrigation, with the aim of securing food self-sufficiency within a durable environmental framework. As a response to the drought of 1984/85, the Intergovernmental Authority for Drought and Development (IGADD) was established in 1986 to assist eastern Africa.

61. International interest in the environment in arid and semi-arid regions was catalysed by the United Nations International Conference on Desertification, held at Nairobi in 1977. The resulting Plan of Action to Combat Desertification put forward a detailed scheme on the manner in which desertification should be tackled, including national planning systems to assess the scale of the problem, monitor the environment, prepare national action plans and implement large-scale anti-desertification measures.

62. The Plan of Action also underlined the special value of the technical input that the United Nations system could provide in combating desertification. In 1978, the mandate of the United Nations Sudano-Sahelian Office was expanded to assist the countries in the Sudano-Sahelian region to implement the Plan of Action under a joint venture between UNEP and UNDP.

63. The African Environment Agenda reflected the environmental aspirations enshrined in the Monrovia Doctrine of 1979. The Lagos Plan of Action, adopted in 1980 by the Assembly of Heads of State and Government of OAU, set out the long-term development objectives of Africa, giving priority to regional food self-sufficiency, the elimination of poverty through the satisfaction of basic needs and national and regional self-reliance. The Cairo Plan of Action was approved by the African Ministerial Conference on Environment in 1985 to strengthen cooperation with the objective of halting and reversing the degradation of the African environment.

64. In 1986, in response to the deepening economic crisis, OAU adopted Africa's Priority Programme for Economic Recovery 1986-1990 and the General Assembly adopted the programme as the United Nations Plan of Action for African Economic Recovery and Development 1986-1990. In the Plan, African countries committed themselves to providing the necessary framework for launching long-term sustainable socio-economic development by implementing the policies and priorities detailed in 1986-1990, and they incorporated drought and desertification as one of those priorities.

65. The concept of environment and sustainable development was crystallized in the report of the World Commission on Environment and Development (see A/42/427, annex), whose recommendations, emphasizing the multisectoral approach to environmental management, were adopted by the General Assembly in its resolution 42/187 of 11 December 1987 on environment and development. The implementation of these recommendations resulted in the Kampala Agenda of Action towards Sustainable Development in Africa in 1989 and the Bamako Declaration on Environment and Sustainable Development in 1990.

66. Increases in aid flows resulted from these international initiatives, most of which were allocated to basic infrastructure development and irrigated agriculture, with far less attention to rainfed agriculture and forestry.

67. The latest initiative that will have an impact on the environment is the forthcoming United Nations Conference on Environment and Development, to be held at Rio de Janeiro, Brazil, in June 1992. The preparatory process is under way and is an important factor influencing current deliberations.

68. The Conference will address the issue of drought and desertification under agenda item 1, section 12 (d), "Protection and management of land resources by, inter alia, combating deforestation, desertification and drought". The General Assembly in its resolution 44/172 specifically urges the United Nations Sudano-Sahelian Office to assist the countries of the Sudano-Sahelian region with their preparations for this Conference. The Office has initiated several programme activities, including a sensitization and information campaign aimed at ensuring that drought and desertification issues receive the priority they deserve during the examination of agenda item 21.

69. A report is being prepared by the Secretary-General of the United Nations Conference on Environment and Development on the results, control measures and financial and technical support of the Plan of Action to Combat Desertification. It will identify the further international cooperation necessary to combat drought and desertification and should draw greater attention to these critical issues particularly in the context of agenda item 21. The proposals contained in the reports being prepared by the Conference secretariat on an integrated approach to the protection and management of land resources and alternative sustainable systems of production will represent a significant input to the Conference for dealing with drought and desertification problems.

70. Although attention on drought and desertification increased steadily throughout the 1970s and 1980s, national government priorities were little concerned with their marginal lands or long-term environmental activities. The acute economic crisis forced them to concentrate on economic affairs such as the oil crisis, unfavourable trade balances and terms of trade, indebtedness and debt rescheduling. By emphasizing these concerns structural adjustment plans often increased pressure on the environment by stressing export production and foreign exchange earnings.

71. The prolonged recurrent drought and increasing land degradation have, however, given rise to a new awareness of the vital nature of environmental concerns. Governments have become increasingly conscious that agricultural production is critical in feeding their growing populations and that any degradation of the environment jeopardizes that goal.

72. As a result greater priority has recently been given by Governments to environmental affairs, especially efforts to arrest land degradation, particularly in the Sudano-Sahelian region. Ministries have been designated or established to be responsible for the environment; institutional mechanisms have been established; national data collection, analysis and monitoring systems and research and training centres have been strengthened; and emphasis has been given to programmes and projects concerned with natural resources.

73. In a 1990 report prepared by the United Nations Sudano-Sahelian Office on drought and desertification in the context of the United Nations Plan of Action for African Economic Recovery and Development, the most frequently quoted measures taken by Governments against desertification related to national planning, institution-building and afforestation, including fuelwood and community plantations. The development of national action plans, including conservation legislation and popular participation was also mentioned. Locust control, sand-dune fixation and off-farm employment received only minor attention.

74. For all Governments, the lack of financial resources was considered a major constraint hindering efforts to combat desertification.

## Recent activities

75. In line with this new focus on drought and desertification issues, projects for the management of natural resources have increased and requests for assistance in environmentally related projects - financial, technical and advisory - have multiplied. In 1990, the World Bank approved 11 free-standing environmental loans or credits, mainly for Africa, compared with two in the previous year; new projects of assistance to the Sudano-Sahelian region of the United Nations Sudano-Sahelian Office increased from $15 million in 1986 to $27 million in 1989; and UNDP in the Fourth Country Programme (1987-1991) approved over 125 projects directly related to drought and desertification, with a financial contribution of $129 million, 111 at national level and 14 regional projects; FAO is supporting 184 projects, with financial assistance of $85 million.

76. Nevertheless, net resource flows to sub-Saharan Africa in 1989, measured in 1986 prices and exchange rates, declined in real terms overall, from $19.4 billion to $18.3 billion.

77. In considering the activities undertaken in the sector it should be noted that while the emphasis of development is on integrated initiatives rather than a sectoral approach, for ease of reporting, the initiatives and

activities reported here will be grouped by topic, considering first the prerequisites for intervention, that is, the framework and tools of action.

## A. Planning and monitoring

### 1. Planning

78. Increasingly, emphasis is put on building institutional capacity in developing countries to collect information, analyse issues and integrate natural resource planning into the overall national planning efforts with a view to improving the quality of corrective measures.

79. A number of donors, together with the World Bank, UNDP/the United Nations Sudano-Sahelian Office, UNEP, FAO and others are supporting the formulation of strategic frameworks for resource management. Mauritius, Madagascar and Rwanda have recently completed comprehensive environmental action plans and those for Burkina Faso, Ghana and Guinea are nearing completion. Implementation of their respective national plan of action to combat desertification is being pursued in Chad, Senegal, Cape Verde, Mali, Burkina Faso, Guinea-Bissau and the Niger. The national plans for the United Republic of Tanzania and Cameroon are in the process of preparation and finalization.

80. National Conservation Strategies have been launched with the support of IUCN to be a theoretical and practical framework for sustainable development through resource conservation. The report for Ethiopia was completed in 1989, but the planning process initiated is ongoing. To avoid duplication of efforts and economize on scarce resources, a process of harmonization of project conception and implementation has been initiated.

81. Specific emphasis has been given to strengthening the subregional and regional coordination organizations, CILSS, IGADD and the Southern African Development Coordination Conference (SADCC). A number of initiatives have been taken in this regard, such as the formulation of a regional strategy for the countries covered by IGADD (Djibouti, Ethiopia, Kenya, Somalia, Uganda and United Republic of Tanzania).

### 2. Assessment, monitoring and training

82. In order to provide more and better data for forecasting, early warning systems, research and as the essential tools for necessary planning and intervention, environmental and information systems activities are being strengthened in the subregions as well as at the national level. Considerable support is being given to AGRHYMET and the African Centre for Meteorological Applications for Development. The Observatory of the Sahara and Sahel, which was initiated by the Government of France, aims to reinforce the organizations, projects and expertise existing in the fields of monitoring the process of desertification and research.

83. At national level and within the framework of IGADD/CILSS/United Nations Sudano-Sahelian Office cooperation, planned and current activities aim to complement national information collection networks, to inventory natural resources, investigate environmental information user needs and survey gaps in relevant research programmes. Also at the national level, where the planning and decision-making processes are located, several monitoring and environmental information systems projects are at the planning stage as corollary activities to strategic frameworks such as the national plans of action to combat desertification, environmental action plans and so on. Similarly, attention is being given to the expansion and improvement of national hydro-meteorological networks, the analysis and processing of the data, and their application to agriculture and land-use practices.

84. Major initiatives exist to monitor vegetation and precipitation in Africa, such as the Africa Real-Time Environment Monitoring System (ARTEMIS), and an agreement has been signed for digitalized information to be provided to African receiving stations through the Data and Information Available Now in Africa system (DIANA). New monitoring centres have been established for drought monitoring at Harare and Nairobi. Audiovisual aids on drought emergency preparedness have been produced by UNDP/Ethiopia in cooperation with other aid programmes and a training programme in emergency preparedness for government and UNDP officials is being launched in cooperation with OAU, ECA and the United Nations Institute for Training and Research.

85. At the global level, a major mapping programme is being carried out under the leadership of UNEP to measure desertification and other forms of land degradation in arid, semi-arid and sub-humid areas. The exercise, which must be seen in conjunction with the major global assessment of desertification status and methodologies report, will be completed in time for the United Nations Conference on Environment and Development in 1992.

86. Training in the use of geographical information systems, already launched in a number of countries, is to be expanded on a subregional basis in the CILSS and IGADD countries. Training is a component of all programmes, ranging from on-the-job training and courses and workshops for government employees to formal education.

87. In view of the scientific queries on climatic change and its influence on the mechanisms of degradation, research activities are being intensified and scientific capacities in Sahelian countries in the field of agro-sylvo-pastoral management strengthened.

## B. Production and food security

88. The development of sustainable agriculture and the improvement of traditional farming systems in the drylands will contribute significantly to improving the food security situation. UNDP is assisting a project on dryland farming research and development in eastern Africa and on strategic grain reserves in the SADCC subregion. In the CILSS area, national food policies

that combine the formulation of national cereal plans, the promotion of local cereals and the development of irrigated perimeters are receiving increasing support.

89. Various support organizations in the region are also being assisted, including the International Institute of Tropical Agriculture, the International Livestock Centre for Africa, the Centre for the Development of Fertilizers and the network on soils of the African Ministerial Conference on Environment.

90. Concerns to improve land resources and increase food production are clear at national level. The Algerian agriculture sector study recommends land policy reforms to encourage private investments in land improvement; investment irrigation and the prevention of reservoir sedimentation; and the introduction of water conservation measures. According to the draft version of the review and evaluation of the implementation of the United Nations Plan of Action for African Recovery and Development by the African Countries prepared by ECA in April 1991, over 90 per cent of African countries give high priority to the food and agricultural sector, but 24 countries indicate that changes in output are due to weather conditions, while 14 countries attribute rises in production to increased investment and improvement in inputs or storage facilities.

91. At both regional and national levels, there is an emphasis on land-use planning, water resource development and conservation, and the development of agro-sylvo-pastoral systems.

92. Soil and watershed management, although essentially within national programmes, require specific subregional cooperation and support. Most of the larger inland waters and river basins have intergovernmental organizations charged with the development and protection of natural resources, for example the Lake Chad Basin Commission and the Organization for the Development of the Senegal River.

93. At national level, the water sector is seen as a priority focus for attention, as a means of increasing production and improving the living and health conditions of the people, while also protecting and conserving natural resources. Many agencies (UNEP, UNDP, United Nations Sahelian Office, FAO, IFAD, UNICEF) are involved in assisting such activities as rural water supply and sanitation, water resource management, water for irrigation, rainwater collection systems and soil and water conservation. Community participation has been particularly emphasized through food-for-work assisted by the World Food Programme (WFP) and village labour components, for example, in erosion control projects in the Niger and Burkina Faso and watershed protection in Guinea.

94. In the pastoral sector, emphasis has been placed on rangeland management and herding development with a view to the formulation of relevant national plans and the stimulation of subregional cooperation in animal products.

95. Several major regional programmes support these efforts and aim particularly to help reverse trends of degradation and maintain sustainable production in arid ecosystems, to support the development of pastoral nomadism by enhancing range resources and studying the impact of government policies on livestock and cereal markets, and to control transhumance by harmonizing legislation in the Sahel. In this latter context, the international transhumance certificate, adopted by the Economic Community of West African States (ECOWAS), CILSS and the Economic Community for Livestock and Meat is already operational in the countries covered by the three institutions.

96. Issues that must be solved in order to increase land productivity are those of land tenure and pastoral rights, which are important constraints on the development and protection of land resources. Such matters are receiving an additional focus at all levels. A World Bank study on land tenure in agriculture, which will be published in 1991, should help clarify the extent of the problem, so that action may be planned.

97. Several national projects are concerned with the rehabilitation of severely degraded rangeland, for example, in the Gambia and Mali, while others address sand-dune stabilization, as in the northern Sudan, the Nafta-El-Wad region of north Africa and sand-dune fixation and basin protection in Senegal and Mauritania.

## C. Afforestation and energy

98. The Tropical Forestry Action Plan, which was adopted on the initiative of UNDP, FAO, the World Bank and others advocates in particular the protection and rehabilitation of tropical forests, combatting desertification, improved land-use and the promotion of agro-forestry, especially fuelwood production. Within the framework of assessing the extent of destruction of forests, forestry sector reviews have been initiated.

99. Many forestry-based activities are under way, often as components of other projects, including fuelwood plantations, as in Burkina Faso, Ethiopia, Senegal, the Niger and the Sudan, and national and regional tree seed centres.

100. More efficient stoves are also being developed and distributed, for example, in the Sudan, Mauritania, the Gambia and Mozambique. Efforts are under way to find cheap, locally available alternatives to wood as a fuel, as in the testing and promotion of gas in Senegal, Burkina Faso and the Niger, biogas in Morocco and the regional butane gas programme in the area covered by CILSS.

## D. Community participation

101. To sensitize the population to environmental issues, which is a prerequisite for ensuring their understanding and participation, numerous educative activities are being pursued in coordination with national,

intergovernmental and non-governmental organizations. These include school tree-planting campaigns and Environment Day or Arbour Day activities, for example, in Kenya, Togo and Benin. Following up on a similar European Community (EEC)-supported initiative for primary schools, a regional CILSS programme designed for secondary schools aims to develop and incorporate an environmental education programme in all academic curricula.

102. All projects work increasingly closely with the beneficiary population both in planning and implementation. Those closest to the local communities are often the non-governmental organizations. Two particular initiatives involving these organizations should be mentioned: the Africa 2000 Network and the Partners in Development programme, both of which are involved in support for environmental projects to foster grassroots development.

103. Within the overall concern for full popular participation in all activities, the role of women is receiving increasing attention. Women in development initiatives are beginning to have an effect in the region and more than 33 per cent of the operations approved by the World Bank in the last two years had components or were designed specifically to address this issue. The provision of extension services to meet women's needs such as access to rural credit are given high priority.

## IV. CONCLUSIONS AND RECOMMENDATIONS

104. The information presented in the present report points to the inevitable conclusion that in spite of the efforts being made and the achievements so far, not enough is being accomplished and progress is too slow for there to be any real success in overcoming drought and desertification problems. Accordingly, recommendations have been put forward that are based on two clear and fundamental premises of development: that Africa has the main responsibility for its own development (Declaration on the United Nations Plan of Action for African Economic Recovery and Development); that the goals of sound development and environmental protection are directly and integrally linked at both national and international levels; and that the international community has a clear duty to give all possible support to the measures undertaken.

105. In the light of these fundamental tenets, within a proper strategic planning framework and with due consideration to the deliberations involved in the preparatory process for the United Nations Conference on Environment and Development, the following priority interventions, which are based on the recommendations put forward in a report prepared by the United Nations Sudano-Sahelian Office on drought and desertification in the context of the United Nations Plan of Action for African Economic Recovery and Development 1986-1990 are suggested.

106. However great the need for action, progress will be hampered unless there are the appropriate strategic frameworks integrated in the overall planning process, within which to plan, support and implement all activity in a

coordinated manner. A first priority should be the verification that such structures exist and the implementation of necessary action to remedy any gaps.

107. The principle that the conservation and protection of the productive resource base must accompany all development efforts is reflected in the increasing number of plans attempting to balance the need for sustainability with overall development needs. For these plans to be effective, however, much more coordination is necessary in order to avoid duplication, economize on scarce resources, ensure more efficient intervention and target appropriate objectives.

108. As a necessary tool of this intervention, monitoring the processes involved is a prerequisite of planning and the coordination of control activities. Optimal scientific and technical resources should be made available to African countries for such monitoring and the processing of the data acquired, bearing in mind the need to harmonize the systems and technology to ensure cost-effectiveness, affordability and appropriateness.

109. Within the established strategic frameworks projects should be designed in close cooperation with the target population, to focus on locally defined priorities and secure as much community understanding and participation as possible.

110. To ensure an effective participation, land ownership or guaranteed title to the products of the land must be secured and marketing and price mechanisms should be adjusted to ensure a fair return to the farmers.

111. Desertification control, including the protection, development and utilization of the natural resource base in a sustainable manner is a long-term process requiring very flexible approaches to project design, such as an evolutionary conception of project objectives and actions in cooperation with the local communities concerned. There is also a need to simplify the rather rigid and cumbersome procedures used by aid agencies in formulating, approving and administering projects and assistance.

112. As national and local non-governmental organizations are usually in the closest contact with the local communities, every attempt should be made to support them fully in project implementation.

113. Conservation programmes with no immediate and visible benefit to individual land users would require special measures to ensure their implementation, such as the institution of compensatory benefits or incentives. Implementation should include compensation and a suitable mix of projects combining early demonstrable returns with long-term conservation measures.

114. In order to accommodate growing pressure on the land, there should be an increasing focus on the development of alternative and supplementary production systems that are environmentally sound. More jobs in the rural sector outside primary food production should be created. Appropriate

small-scale cottage industries, trade and other tertiary industries offer attractive alternative employment opportunities.

115. Special importance needs to be accorded to a population policy that will ensure that population increases do not overstrain the carrying capacity, natural resources and ecological limits of support systems of African drylands.

116. Environmental education, particularly at primary and secondary school levels, is an area that should receive increased emphasis, as being an efficient, if long-term way of sensitizing the population to environmental concerns.

117. Expanding opportunities for women will also contribute to economic performance, slower population growth and other development and environmental objectives.

118. More efforts are needed in the field of research, including that on neglected subsistence crops and grasslands; and large-scale testing of indigenous and exotic species of hardy, drought-resistant crops of proven economic potential, which also meet the requirements of sustainable development.

119. There is a wealth of experience in dealing with the problems of drought and desertification in Africa. North Africa, for instance, which has faced the problem for centuries, has developed various techniques of arid zone development, including soil and water conservation and water harvesting. This technology could usefully be shared with States south of the Sahara. Similarly, many Sudano-Sahelian countries have an extensive knowledge of indigenous and exotic species and agroforestry techniques that could be shared. Increased South-South cooperation in Africa could enhance the productivity of the entire continent and reduce the proportion of foreign aid being spent on expatriate technical assistance.

120. It is estimated that in 1986 Africa received $490 million in assistance related to the problems of desertification and drought, which was approximately 3.5 per cent of the total assistance for that year. The level of total official development assistance to sub-Saharan Africa was $13.4 billion in 1988, or only $28.9 per capita. These sums are far from adequate in relation to the scale of the problems. The General Assembly, in its resolution 44/228 of 22 December 1989 on the United Nations Conference on Environment and Development, affirms that "the protection and enhancement of the environment are major issues that affect the well-being of peoples and economic development throughout the world" and that "the promotion of economic growth in developing countries is essential to address problems of environmental degradation". It is only by the complete acceptance of the global implications of these statements that determined and sufficient transfers of resources can be made.

## Notes

1/ Report of the United Nations Conference on Desertification, Nairobi, 29 August-9 September 1977 (A/CONF.74/36), chap. I, para. 7) and resolution 32/172 of 19 December 1977.

ANNEX I

Countries in Africa affected by desertification

North Africa

Algeria a/
Egypt a/
Libyan Arab Jamahiriya a/
Morocco a/
Tunisia a/

Sudano-Sahel

Benin a/
Burkina Faso a/
Cameroon a/
Cape Verde a/
Chad a/
Djibouti a/
Ethiopia a/
Gambia a/
Ghana a/
Guinea
Guinea-Bissau
Kenya a/
Mali a/
Mauritania a/
Niger a/
Nigeria a/
Senegal a/
Somalia a/
Sudan a/
Togo a/
Uganda a/
United Republic of Tanzania a/

Kalahari-Namibian region

Angola a/
Botswana a/
Lesotho a/
Mozambique a/
Namibia a/
South Africa a/
Swaziland a/
Zambia a/
Zimbabwe a/

Others

Burundi
Côte d'Ivoire
Liberia
Madagascar a/
Malawi a/
Rwanda

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a/ Affected by desertification.

## ANNEX II

### Countries affected by drought and other emergencies, 1991

| Country | Nature of emergency | Affected population |
|---|---|---|
| Angola | Drought, civil war | 1 900 000 |
| Benin | Drought | 150 000 |
| Burkina Faso | Drought | 2 500 000 |
| Cameroon | Drought, refugees | 203 000 |
| Cape Verde | Drought, locusts, wind | 170 000 |
| Chad | Drought, civil strife | 1 200 000 |
| Congo | Flooding, refugees | 10 000 |
| Côte d'Ivoire | Refugees | 300 000 |
| Djibouti | Drought, flooding, external displaced persons | 150 000 |
| Ethiopia | Drought, civil war | 6 025 000 |
| Gambia | Drought | 684 000 |
| Guinea | Refugees | 1 000 000 |
| Liberia | Civil war | 1 500 000 |
| Madagascar | Cyclones | 25 000 |
| Malawi | Drought, refugees | 3 800 000 |
| Mali | Drought, returnees, refugees, civil strife | 1 300 000 |
| Mauritania | Drought, locusts | 1 300 000 |
| Mozambique | Civil war, drought | 7 900 000 |
| Namibia | Chronic drought | 157 000 |
| Niger | Drought, refugees | 2 850 000 |
| Rwanda | Food shortages | 320 000 |
| Sierra Leone | Refugees | 200 000 |
| Somalia | Drought, civil war, refugees | 7 000 000 |
| Sudan | Drought, civil war, refugees | 8 000 000 |
| Swaziland | Refugees | 26 000 |
| Uganda | Refugees, displaced persons | 470 000 |
| Zaire | Refugees | 95 000 |
| Zambia | Cholera, refugees | 20 000 |
| Zimbabwe | Refugees | 103 000 |
| Total | | 49 358 000 |

ANNEX III

Average annual rates of growth of total and per capita food production, 1976-1989

| | Food production | | | | | |
|---|---|---|---|---|---|---|
| | Total | | | Per head of population | | |
| | 1976-1980 | 1981-1985 | 1986-1989 | 1976-1980 | 1981-1985 | 1986-1989 |
| Africa | | | | | | |
| Algeria | 0.1 | 3.6 | -2.8 | -2.9 | 0.5 | -5.8 |
| Angola | 0.7 | 0.2 | 0.0 | -2.6 | -2.3 | -2.6 |
| Benin | 3.9 | 6.1 | 2.0 | 1.1 | 3.1 | -1.2 |
| Botswana | -3.7 | 0.7 | 1.5 | -7.3 | -2.9 | -2.0 |
| Burkina Faso | -0.8 | 6.0 | 2.5 | -2.8 | 3.4 | -0.2 |
| Burundi | 0.6 | 3.5 | -1.9 | -1.3 | 0.6 | -4.7 |
| Cameroon | -0.6 | 2.2 | 2.4 | -3.1 | -0.5 | -0.3 |
| Central African Republic | 2.0 | 0.3 | 0.2 | -0.3 | -1.9 | -2.2 |
| Chad | 3.0 | 2.6 | 0.4 | 0.8 | 0.3 | -2.0 |
| Congo | 2.0 | 1.3 | 2.6 | -0.4 | -1.3 | -0.1 |
| Côte d'Ivoire | 6.2 | 3.9 | 4.9 | 2.3 | -0.4 | 0.6 |
| Egypt | 1.0 | 3.9 | 3.8 | -1.7 | 1.1 | 1.1 |
| Ethiopia | 2.8 | -0.4 | 1.9 | 0.5 | -2.1 | 0.1 |
| Gabon | 2.6 | -0.2 | 1.7 | 1.3 | -4.2 | -1.8 |
| Gambia | -7.7 | 3.1 | 4.6 | -9.7 | 0.1 | 1.6 |
| Ghana | -2.5 | 11.0 | -1.2 | -5.7 | 7.1 | -4.3 |
| Guinea | 1.9 | 0.1 | 1.5 | -0.3 | -2.2 | -1.0 |
| Guinea-Bissau | -0.5 | 7.4 | 3.9 | -5.5 | 5.4 | 1.8 |
| Kenya | 0.4 | 3.9 | 5.6 | -3.5 | -0.2 | 1.3 |
| Lesotho | 1.3 | 0.0 | -1.5 | -1.1 | -2.8 | -4.3 |
| Liberia | 2.4 | 3.5 | 1.2 | -0.9 | 0.3 | -2.0 |
| Libyan Arab Jamahiriya | 0.5 | 6.6 | -0.1 | -3.5 | 2.0 | -3.8 |
| Madagascar | 0.9 | 1.9 | 2.1 | -3.5 | 2.0 | -3.8 |
| Malawi | 3.2 | 1.1 | 2.3 | 0.3 | -2.0 | -1.0 |
| Mali | 2.1 | 2.5 | 3.0 | -0.2 | -0.3 | 0.0 |

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| | Food production | | | | | |
|---|---|---|---|---|---|---|
| | Total | | | Per head of population | | |
| | 1976-1980 | 1981-1985 | 1986-1989 | 1976-1980 | 1981-1985 | 1986-1989 |
| Mauritania | 4.7 | 0.3 | 2.2 | 1.9 | -2.3 | -0.5 |
| Mauritius | 1.2 | 4.9 | 1.8 | -0.8 | 3.2 | 0.5 |
| Morocco | 4.6 | 2.3 | 5.8 | 2.2 | -0.4 | 3.1 |
| Mozambique | 1.0 | -0.3 | 1.4 | -3.3 | -2.8 | -1.3 |
| Namibia | 0.1 | 0.2 | 3.1 | -2.5 | -2.8 | -0.1 |
| Niger | 10.6 | -0.1 | 0.4 | 7.8 | -2.9 | -2.5 |
| Nigeria | 2.6 | 4.1 | 1.7 | -0.9 | 0.7 | -1.7 |
| Réunion | 0.8 | -2.0 | 0.7 | -0.3 | -3.5 | -1.0 |
| Rwanda | 4.1 | 3.0 | -3.3 | 0.8 | -0.4 | -6.6 |
| Senegal | -8.6 | 7.6 | 3.3 | -11.7 | 4.9 | 0.6 |
| Sierra Leone | 0.3 | 0.5 | 0.6 | -1.3 | -1.8 | -1.9 |
| Somalia | 1.2 | 3.0 | 3.6 | -2.9 | -0.6 | 0.2 |
| Sudan | 2.6 | 2.7 | 0.8 | -0.5 | -0.5 | -2.1 |
| Swaziland | 4.7 | 1.5 | 3.7 | 1.8 | -1.8 | 0.2 |
| Togo | 2.0 | 0.9 | 2.9 | -0.5 | -2.0 | -0.2 |
| Tunisia | 0.3 | 4.8 | -5.1 | -2.2 | 2.1 | -7.3 |
| Uganda | -2.0 | 0.7 | 1.7 | -5.1 | -2.6 | -1.8 |
| United Republic of Tanzania | 4.6 | 3.1 | 2.1 | 1.1 | -0.7 | -1.6 |
| Zaire | 1.1 | 2.7 | 1.4 | -1.8 | -0.4 | -1.8 |
| Zambia | -1.1 | 2.2 | 3.3 | -4.1 | -1.8 | -0.6 |
| Zimbabwe | -1.4 | 7.4 | -1.1 | -4.7 | 4.2 | -4.1 |

Source: World Economic Survey, 1990.

ANNEX IV

Basic indicators for Africa

| Subregion/country | Population (thousands) 1990 | GDP per capita in constant 1980 United States dollars 1990 | Index of food production per capita (1978-81 = 100) 1985 | 1990 | Production of cereals (kilograms per capita) 1989 |
|---|---|---|---|---|---|
| North | 142 470 | 1 174 | - | - | - |
| Algeria | 25 364 | 2 145 | 110.00 | 93.00 | 72 |
| Egypt | 54 059 | 678 | 104.80 | 116.24 | 195 |
| Libyan Arab Jamahiriya | 4 544 | 6 674 | 96.66 | 103.58 | 69 |
| Morocco | 25 139 | 983 | 86.99 | 115.11 | 304 |
| Sudan | 25 195 | 356 | 94.23 | 84.24 | 97 |
| Tunisia | 8 169 | 1 495 | 117.68 | 104.97 | 80 |
| West | 199 504 | 683 | - | - | - |
| Benin | 4 741 | 340 | 113.92 | 120.37 | 130 |
| Burkina Faso | 9 007 | 223 | 112.39 | 110.61 | 223 |
| Cape Verde | 379 | 243 | - | 106.73 | 19 |
| Côte d'Ivoire | 12 596 | 778 | 97.31 | 88.37 | 92 |
| Gambia | 858 | 372 | 92.86 | 91.54 | 140 |
| Ghana | 15 020 | 363 | 140.20 | 99.34 | 86 |
| Guinea | 6 876 | 333 | 121.68 | 87.52 | 125 |
| Guinea-Bissau | 987 | 234 | 97.54 | 107.15 | 257 |
| Liberia | 2 554 | 277 | 113.07 | 75.59 | 117 |
| Mali | 9 362 | 261 | 88.69 | 97.51 | 237 |
| Mauritania | 2 024 | 389 | 102.19 | 87.01 | 69 |
| Niger | 7 109 | 358 | 105.24 | 84.90 | 266 |
| Nigeria | 113 016 | 900 | 79.70 | 88.75 | 102 |
| Senegal | 7 369 | 531 | 91.85 | 108.22 | 149 |
| Sierra Leone | 4 151 | 262 | 97.24 | 86.98 | 120 |
| Togo | 3 455 | 351 | 89.58 | 100.45 | 153 |
| Central | 72 926 | 472 | - | - | - |
| Burundi | 5 451 | 251 | 99.69 | 92.90 | 61 |
| Cameroon | 12 019 | 787 | 96.46 | 94.52 | 74 |
| Central African Republic | 2 913 | 370 | 91.05 | 97.50 | 51 |
| Chad | 5 678 | 200 | 103.51 | 96.20 | 122 |
| Congo | 1 994 | 1 465 | 93.85 | 95.16 | 5 |

| Subregion/country | Population (thousands) 1990 | GDP per capita in constant 1980 United States dollars 1990 | Index of food production per capita (1978-81 = 100) 1985 | 1990 | Production of cereals (kilograms per capita) 1989 |
|---|---|---|---|---|---|
| Equatorial Guinea | 354 | 161 | - | - | 0 |
| Gabon | 1 171 | 4 117 | 82.47 | 76.81 | 11 |
| Rwanda | 7 232 | 183 | 109.24 | 68.42 | 38 |
| Sao Tome and Principe | 124 | 387 | - | 64.99 | 8 |
| Zaire | 35 990 | 340 | 96.34 | 89.62 | 35 |
| East and Southern | 197 326 | 319 | - | - | - |
| Angola | 10 020 | 765 | 89.85 | 78.53 | 29 |
| Botswana | 1 285 | 1 812 | 76.35 | 70.14 | 48 |
| Comoros | 468 | 318 | - | 91.67 | 42 |
| Djibouti | 566 | 617 | - | - | 0 |
| Ethiopia | 46 743 | 106 | 88.93 | 88.42 | 129 |
| Kenya | 25 130 | 411 | 85.10 | 100.20 | 144 |
| Lesotho | 1 774 | 302 | 99.51 | 80.88 | 72 |
| Madagascar | 11 960 | 290 | 88.63 | 89.36 | 216 |
| Malawi | 8 428 | 206 | 94.11 | 80.96 | 195 |
| Mauritius | 1 033 | 2 003 | 105.41 | 113.83 | 4 |
| Mozambique | 15 663 | 144 | 86.06 | 82.66 | 35 |
| Namibia | 1 876 | 1 149 | - | 94.36 | 74 |
| Seychelles | 69 | 2 768 | - | - | 0 |
| Somalia | 7 555 | 390 | 84.59 | 95.81 | 83 |
| Swaziland | 789 | 980 | 94.50 | 89.06 | 185 |
| Uganda | 18 442 | 192 | 86.18 | 82.84 | 54 |
| United Republic of Tanzania | 27 328 | 229 | 89.58 | 83.81 | 176 |
| Zambia | 8 456 | 471 | 93.74 | 88.32 | 244 |
| Zimbabwe | 9 721 | 753 | 111.78 | 91.79 | 262 |
| Total Africa | 612 226 | 655 | - | - | - |

Source: Economic Commission for Africa, 1991.

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